Claims 1-6, 13, 15, 17-18, 24-25 and 34-35 are amended herewith.

Claim 8, 10-12, 14, 20-23, 28-30 and 33 are cancelled herewith.

1. **(Currently Amended)** A method for image data compression, comprising:

Approximating at least one non-power-of-2 element of a base matrix as a power-of-2 element such that all elements of a resultant matrix T_2 are power-of-2 elements~~; and~~, wherein the resultant matrix T_2 is:

$$T_2 = \begin{pmatrix} 1 & 1 & 1 & 1 & 1 & 1 & 1 & 1 \\ a & b & c & d & -d & -c & -b & -a \\ e & f & -f & -e & -e & -f & f & e \\ c & d & -a & -b & b & a & -d & -c \\ 1 & -1 & -1 & 1 & 1 & -1 & -1 & 1 \\ b & -a & -d & c & -c & d & a & -b \\ f & -e & e & -f & -f & e & -e & f \\ d & -c & b & -a & a & -b & c & -d \end{pmatrix}$$

wherein further, for floating point coefficients a, b, c, d, e, and f:

$a \geq b \geq c \geq d$ and $e \geq f$,

$a = 2$, $b = 2$, $c = 1$, all $d = ½$ or all $d = ¼$, $e = 2$ and $f = 1$; and

encoding video data using the resultant matrix T_2.

2. **(Currently Amended)** A method according to Claim 1, wherein the base matrix is a DCT (discrete cosine transform) matrix.

3. **(Currently Amended)** A method according to Claim 1, wherein the approximating includes manipulating an order of the one or more elements in a particular row of the base matrix.

4. **(Currently Amended)** A method according to Claim 1, wherein the approximating includes manipulating the signs of the one or more elements in a particular row of the base matrix.

5. **(Currently Amended)** A method according to Claim 1, wherein the approximating includes manipulating an order and the signs of the one or more elements in a particular row of the base matrix.

6. **(Currently Amended)** A method according to Claim 1, wherein the approximating includes approximating floating point coefficients as power-of-2 coefficients to preserve a threshold relationship between ~~among~~ the floating point coefficients.

7. **(Original)** A method according to Claim 1, wherein the approximating includes approximating floating point coefficients as power-of-2 coefficients to preserve a relative ratio among the floating point coefficients.

8. (Cancelled).

9. (Original) A method according to Claim 1, wherein the row vectors of the resultant matrix $\underline{T_2}$ are orthogonal.

10-12. (Cancelled).

13. (Currently Amended) A method according to Claim ~~11~~ 1, wherein ~~floating point coefficients $a = b = 2$, $c = 1$, $d = ¼$, $e = 2$, $f = 1$, and wherein further~~ multiplication for non-integer d is implemented by a two-bit right shift.

14. (Cancelled).

15. (Currently Amended) An image data encoding apparatus, comprising:

a transformer to perform a 2-power transform on an incoming array of pixels, the transformer to perform the 2-power transform using a symmetrical matrix in which all elements are expressed as power-of-2 elements, wherein the resulting matrix T_2 is:

$$T_2 = \begin{pmatrix} 1 & 1 & 1 & 1 & 1 & 1 & 1 & 1 \\ a & b & c & d & -d & -c & -b & -a \\ e & f & -f & -e & -e & -f & f & e \\ c & d & -a & -b & b & a & -d & -c \\ 1 & -1 & -1 & 1 & 1 & -1 & -1 & 1 \\ b & -a & -d & c & -c & d & a & -b \\ f & -e & e & -f & -f & e & -e & f \\ d & -c & b & -a & a & -b & c & -d \end{pmatrix}$$

wherein further, for floating point coefficients a, b, c, d, e, and f:

$a \geq b \geq c \geq d$ and $e \geq f$,

$a = 2$, $b = 2$, $c = 1$, all $d = \frac{1}{2}$ or all $d = \frac{1}{4}$, $e = 2$ and $f = 1$;

a quantizer to quantize the transformer result; and

an inverse transformer to perform an inverse 2-power transform on the quantizer result.

16. (Cancelled).

17. (Currently Amended) An apparatus according to Claim 15, wherein an order of two or more elements in a particular row of the symmetrical matrix have been changed within the resulting matrix T_2.

18. (Currently Amended) An apparatus according to Claim 15, wherein the signs of one or more elements in a particular row of the symmetrical matrix have been changed within the resulting matrix T_2.

19. (Previously Presented) An apparatus according to Claim 15, wherein the symmetrical matrix is a DCT matrix template.

20-23. (Cancelled).

24. (Currently Amended) An apparatus according to Claim 15, wherein the row vectors of the resulting matrix T_2 are orthogonal.

25. (Currently Amended) A computer-readable storage medium encoded with one or more computer-executable instructions, the one or more computer-executable instructions configured to cause one or more processors to:

create a matrix such that all elements in the matrix are expressed as power-of-2 coefficients, wherein the resultant matrix T_2 is:

$$T_2 = \begin{pmatrix} 1 & 1 & 1 & 1 & 1 & 1 & 1 & 1 \\ a & b & c & d & -d & -c & -b & -a \\ e & f & -f & -e & -e & -f & f & e \\ c & d & -a & -b & b & a & -d & -c \\ 1 & -1 & -1 & 1 & 1 & -1 & -1 & 1 \\ b & -a & -d & c & -c & d & a & -b \\ f & -e & e & -f & -f & e & -e & f \\ d & -c & b & -a & a & -b & c & -d \end{pmatrix}$$

wherein further the floating point coefficients are:

$a = 2$, $b = 2$, $c = 1$, all $d = ½$ or all $d = ¼$, $e = 2$ and $f = 1$; and

encode video data using the resultant matrix T_2.

26. (Previously Presented) A computer-readable storage medium according to Claim 25, wherein to create the matrix is to change at least one of an order of one or more elements in a particular row of a template matrix.

27. (Previously Presented) A computer-readable storage medium according to Claim 25, wherein to create the matrix is to change the sign of at least one element in a particular row of a template matrix.

28-30. (Cancelled).

31. (Previously Presented) A computer-readable storage medium according to Claim 26, wherein the template matrix is a DCT matrix.

32. (Previously Presented) A computer-readable storage medium according to Claim 27, wherein the template matrix is a DCT matrix.

33. (Cancelled).

34. (Currently Amended) A computer-readable storage medium according to Claim 25, wherein the row vectors of the resultant matrix T_2 are orthogonal.

35. (Currently Amended) An image data encoding apparatus, comprising:

means for performing a 2-power transform on an incoming array of pixels, wherein all elements of the 2-power transform are equal to power-of-2 elements such that the resulting transform matrix T_2 is:

$$T_2 = \begin{pmatrix} 1 & 1 & 1 & 1 & 1 & 1 & 1 & 1 \\ a & b & c & d & -d & -c & -b & -a \\ e & f & -f & -e & -e & -f & f & e \\ c & d & -a & -b & b & a & -d & -c \\ 1 & -1 & -1 & 1 & 1 & -1 & -1 & 1 \\ b & -a & -d & c & -c & d & a & -b \\ f & -e & e & -f & -f & e & -e & f \\ d & -c & b & -a & a & -b & c & -d \end{pmatrix}$$

wherein further the floating point coefficients are:

$a = 2$, $b = 2$, $c = 1$, all $d = ½$ or all $d = ¼$, $e = 2$ and $f = 1$;

means for quantizing the transformer result; and

means for performing an inverse 2-power transform on the quantizer result.